WHAT IS CLAIMED IS:

1. A gas barrier film having polypropylene as a base film, which comprises;

a polypropylene film whose surface is bonded with tuning molecular chains having, as a main skeleton, an -O-Si-O- structure by enabling the oxygen (-O-) thereof to be bonded to carbon atoms of the surface of said polypropylene film; and

an SiO_x thin film formed on the surface of said polypropylene film where said tuning molecular chains are bonded, said SiO_x thin film being bonded to said tuning molecular chains interposed between said polypropylene film and said SiO_x thin film.

2. The gas barrier film according to claim 1, wherein a bond ratio of said tuning molecular chains to a surface of said polypropylene film is in the range of 0.05 to 0.20 as measured based on an atomic ratio between the total number of carbon atoms constituting the surface of the polypropylene film and the number of oxygen atoms, each partially bonded to a carbon atom (i.e. Q_O/Q_C; wherein Q_C represents the total number of carbon atoms constituting the surface of the polypropylene film, and Q_O is the number of oxygen functional groups, each partially bonded to a carbon atom).

3. The gas barrier film according to claim 1, wherein said tuning molecular chains include an alkyl

group which is attached to an intermediate or terminal portion of the main skeleton thereof.

4. A method of manufacturing a gas barrier film having polypropylene as a base film, said method comprising the steps of;

activating carbon atoms of a surface of said polypropylene film by subjecting said polypropylene film to a plasma treatment, the activated carbon atoms being subsequently exposed to air atmosphere to allow the activated carbon atoms to be bonded with oxygen, thereby introducing oxygen functional groups into the surface of said polypropylene film;

allowing a coupling reaction to take place between the oxygen functional group of said polypropylene film and a silane coupling agent, thereby bonding tuning molecular chains having, as a main skeleton, an -O-Si-O- structure, to carbon atoms of the surface of said polypropylene film through said oxygen functional group (-O-); and

allowing a plasma polymerization between Si and O in a plasma atmosphere containing an organic silane compound and oxygen, thereby forming an SiO_x thin film on the surface of said polypropylene film having said tuning molecular chains bonded therein.

5. The method according to claim 4, wherein said plasma treatment is performed using an argon plasma.

6. The method according to claim 4, wherein

said oxygen functional groups are introduced into carbon atoms of the polypropylene film in the form of C-O and/or C=O.

7. The method according to claim 4, wherein an introduction ratio of said oxygen functional groups to the polypropylene film is in the range of 0.05 to 0.20 as measured based on an atomic ratio between the total number of carbon atoms constituting the surface of the polypropylene film and the number of oxygen atoms, each partially bonded to a carbon atom (i.e. Q_O/Q_C; wherein Q_C represents the total number of carbon atoms constituting the surface of the polypropylene film, and Q_O is the number of oxygen functional groups, each partially bonded to a carbon atom).

8. The method according to claim 4, wherein said silane coupling agent is an organic silane compound represented by a general formula of: $-(R^1O)_n-Si-R^2{}_{(4-n)}$ (wherein R^1 and R^2 individually represents alkyl group having 1 to 4 carbon atoms).

9. The method according to claim 8, wherein said coupling reaction is performed by a process wherein the polypropylene film having said oxygen functional group introduced therein is immersed in an alcohol solution of the silane coupling agent, and then, heated the film coated with the alcohol solution.

10. The method according to claim 9, wherein a concentration of said silane coupling agent in the

alcohol solution thereof is in the range of 0.1 to 10% by weight.

11. The method according to claim 9, wherein said polypropylene film coated with the alcohol solution is heated at a temperature of 50 to 80℃.

12. The method according to claim 4, wherein said organic silane compound is represented by a general formula of: $(R^1O)_n-Si-R^2{}_{(4-n)}$ (wherein R^1 and R^2 individually represents alkyl group having 1 to 4 carbon atoms).

13. The method according to claim 4 or 12, wherein said organic silane compound and oxygen are employed by mixing them at a molar ratio of; organic silane compound:oxygen = 3:7 - 5:5.